

## Isotopes of Einsteinium

Isotope	Atomic Mass	Half-life	Mode of Decay	Nuclear Spin	Nuclear Magnetic Moment
Es-249	249.07640	1.70 hours	EC to Cf-249; $\alpha$ to Bk-245	7/2	No data available
Es-250	250.0787	8.60 hours	EC to Cf-250; $\alpha$ to Bk-246	6	No data available
Es-251	251.07998	1.38 days	EC to Cf-251; $\alpha$ to Bk-247	3/2	No data available
Es-252	252.082944	1.29 years	EC to Cf-252; $\alpha$ to Bk-248; $\beta^-$ to Fm-252	5	No data available
Es-253	253.08482	20.47 days	$\alpha$ to Bk-249; SF	7/2	4.10
Es-254	254.08802	276 days	EC to Cf-254; $\alpha$ to Bk-250; $\beta^-$ to Fm-254; SF	7	No data available
Es-255	255.09027	40 days	$\alpha$ to Bk-251; $\beta^-$ to Fm-255; SF	7/2	No data available



Einsteinium is a radioactive rare earth metal, discovered in 1952 by workers at Argonne and Los Alamos National Laboratories, along with the University of California - Berkeley, USA. It was identified by Albert Ghiorso and others in radioactive debris from the first large thermonuclear bomb explosion, which took place in the Pacific in November 1952. In 1961, a sufficient amount of einsteinium was produced to permit separation of a macroscopic amount of Einsteinium-253. This element is named for

Albert Einstein.

Einsteinium is a soft, silvery white, paramagnetic metal, believed to have a face-centered cubic structure. Einsteinium-253's conversion to berkelium and then californium at a rate of about 3% per day — along with its scarcity — makes it difficult to study einsteinium's properties; however, it shares many similarities with holmium in its physical and chemical properties.

There is almost no use for any isotope of einsteinium outside of basic scientific research aiming at production of higher transuranic elements and transactinides; however, Einsteinium-254 was used as the calibration marker in the chemical analysis spectrometer of the *Surveyor 5* lunar probe. All isotopes of einsteinium are extremely radioactive and are considered highly dangerous to health upon ingestion.

## Properties of Einsteinium

<b>Name</b>	Einsteinium
<b>Symbol</b>	Es
<b>Atomic number</b>	99
<b>Atomic weight</b>	[252]
<b>Standard state</b>	Solid at 298 °K
<b>CAS Registry ID</b>	7429-92-7
<b>Group in periodic table</b>	N/A
<b>Group name</b>	Actinoid
<b>Period in periodic table</b>	7 (Actinoid)
<b>Block in periodic table</b>	f-block
<b>Color</b>	Unknown, but probably metallic and silvery white or grey in appearance
<b>Classification</b>	Metallic
<b>Melting point</b>	1133 °K [or 860 °C or 1580 °F]
<b>Boiling point</b>	No data available
<b>Density of solid</b>	13.50 g/cm <sup>3</sup>
<b>Electron configuration</b>	[Rn]5f <sup>11</sup> 7s <sup>2</sup>